

REMARKS

Summary of Changes Made

The specification has been amended in several places to correct the spelling of “hexanoate” as well as to accord full respect to the trademark “ACRAWAX ®.” Claim 1 has been amended to include the limitations of claims 2, 4, 6, 7, and 9 plus property limitations of paragraph 11, and compositional limitations of paragraph 24 of the specification. Claims 2, 4, 6, 7, 9, and 16-20 have been canceled. Claims 3, 5, and 10-15 have been amended to correct dependency, and claims 14 and 15 have been amended to correct the spelling of “hexanoate.” New claims 21 and 22 have been added. The application originally contained 20 claims. Accordingly, claims 1, 3, 5, 8, 10-15, 21, and 22 (12 claims) remain pending in the application. No new matter has been added to the application.

Specification

The Examiner instructed Applicant to present the trademark term “ACRAWAX” in capital letters wherever it appears. Applicants respectfully submit that the several textual instances of “ACRAWAX” are both capitalized, appear with the ® symbol, and at least one (in paragraph 22) appears with its generic name, “ethylene bisstearamide.” Nevertheless, the table between paragraphs 40 and 41 has been amended to present “ACRAWAX” capitalized and with the “®” symbol. The entire table, including its 6 footnotes, has been reproduced for completeness. It is believed that this approach fully complies with the Examiner’s directive.

Claim Rejections - 35 U.S.C. §112

The Examiner has rejected claims 1-20 under 35 U.S.C. § 112, first paragraph, because the Examiner believes that the specification does not enable one skilled in the art to practice a solid lubricant system capable of forming a liquid phase upon application of pressure.

Applicants respectfully disagree with the Examiner’s contention, and note that the Examiner provided no reasoning or justification for the rejection other than a conclusory statement. The application contains several references and discussions of the phenomenon of

conversion of the lubricant system from solid to liquid upon application of pressure, including, at least, paragraphs 4, 8, 11, 28, 29, and 31 of the specification.

It is further difficult to understand the rejection in light of the issuance of U.S. Pat. No. 6,679,935, the parent application hereto, where claim 1 recites: “[a] composition for use in powder metallurgy comprising a mixture of a metal powder and a solid lubricant system distributed throughout said mixture, at least a portion of said solid lubricant system converting to a liquid phase upon application of pressure to said composition.” It appears that a colleague of the Examiner felt the limitation “at least a portion of said solid lubricant system converting to a liquid phase upon application of pressure to said composition” satisfies all sections of Title 35.

Based on the foregoing, Applicant respectfully requests that the Examiner withdraw the rejection, and asserts that claims 1-15 are fully enabled by the specification.

Double Patenting

Next, the Examiner has rejected claims 16-20 under the judicially created doctrine of obviousness-type double patenting as unpatentable over claims 1-15, of Hammond, U.S. Pat. No. 6,679,935 (“the ‘935 patent”).

Although the instant application is a division of the application which ultimately matured into the ‘935 patent, hence rendering the rejection moot, (i.e., there can be no “improper timewise extension of the ‘right to exclude’”), in the interest of moving the application toward a notice of allowance, Applicant has canceled claims 16-20.

Claim Rejections - 35 U.S.C. §102(e)/103(a) (Schofalvi I)

The Examiner rejected claims 1-20 under 35 U.S.C. § 102 or in the alternative, under 35 U.S.C. 103 over Schofalvi, U.S 6,093,761 (“Schofalvi I”). The Examiner contends that Schofalvi I discloses a binder composition comprising a polycarbonate polymer, an ethylenebisamide wax, and a guanidine wetting agent. The Examiner further contends that Schofalvi I discloses a method of forming a sintered part by powder injection molding. The guanidine wetting agent is the reaction product of guanidine and an acid selected from the group consisting of fatty acid, organic acid and a stronger acid. The guanidine wetting agent may be

guanidine may be guanidine ethyl-hexanoate. The organic acids include C₁₂ to C₂₂ acids such as lauric, tridecyclic, palmitic, and stearic. The Examiner concludes that “Schofalvi meets the limitations of the solid lubricant system of instant claims 1-15, and the composition of claims 16-20,” and further notes that the instant claim language “comprising” allows for the addition of other components to the compositions including the polycarbonate polymer of the prior art. The Examiner further concludes that because the compositions are the same, the solid lubricant of Schofalvi I would also liquefy under pressure.

First, the Examiner will note that claims 16-20 have been canceled, thus rendering the rejection thereof moot. The Examiner will further note the amendments to claim 1, which incorporate the limitations of claims 2, 4, 6, 7, and 9, as well as the temperature limitation disclosed at paragraph 11 of the specification.

The presently claimed invention (claims 1-15) is patentably distinct over Schofalvi I owing to the presence of the first recited element: polycarbonate. The broadest conception of Schofalvi I includes polycarbonate, and no embodiment thereof lacks polycarbonate. Further, Schofalvi I is directed to a binder system, while the presently claimed invention is directed to a lubricant system. While the Examiner believes the use of “comprising” in the presently rejected claims includes the possibility of polycarbonate, such is at odds with the focus of the present invention.

Polycarbonate, as most commonly encountered in eyeglass lenses and headlight housings, is a solid at 100°F, and much higher. It does not even require ordinary skill in the art to know this, as the average person is familiar with polycarbonate eyeglass lenses and headlight casings, and knows that they do not melt at 100°F. The lubricant system of claim 1, as amended, is a solid at ambient conditions, yet is a liquid, having a viscosity of about 1000 to about 6000 poise at a shear rate of about 1000/sec at 100 °F.

The fact that the presently claimed lubricant system forms a liquid phase while that of Schofalvi I does not, is a distinction that the Examiner glosses over. Because the presently claimed composition is a lubricant system, it must form a liquid in order to be effective. The instantly claimed lubricant system does not “decompose,” as asserted by the Examiner, rather, it merely melts, that is, forms a liquid.

Based on the foregoing differences between Schofalvi I and the presently claimed invention, Applicant respectfully requests that the rejections of claims 1-15 be withdrawn.

Claim Rejections - 35 U.S.C. §102(e)/103(a) (Schofalvi II)

Next, claims 1-20 were rejected claims 1-20 under 35 U.S.C. § 102(e) or in the alternative, under 35 U.S.C. 103 over Schofalvi, et al., U.S 6,376,585 (“Schofalvi II”). The Examiner acknowledges that Schofalvi II has a common inventor with the instant case, and indicates that it is possible to overcome the 102(e) rejection by submission of an affidavit or declaration stating either that the subject matter claimed herein was invented prior to the subject matter of Schofalvi II, or that any invention disclosed but not claimed therein was invented solely by the inventor herein, and is therefore not an invention “by another.” The Examiner notes that Schofalvi II is essentially identical to Schofalvi I.

First, the Examiner will note that claims 16-20 have been canceled, thus rendering the rejection thereof moot. Based on the Examiner’s admission that Schofalvi II is “essentially identical” to Schofalvi I, the above argumentation distinguishing the present invention from Schofalvi I, serves to distinguish the present invention over Schofalvi II. Applicant respectfully submits that the present invention is patentable over Schofalvi II.

Claim Rejections - 35 U.S.C. §102(e)/103(a) (Balasubramaniam)

Finally, the Examiner rejected claims 1-7 and 10-15 under 35 U.S.C. 103(a) over Balasubramaniam, U.S. 6,303,547 (“Balasubramaniam”). The Examiner contends that Balasubramaniam discloses friction modified lubricants comprising the reaction product of a C₅-C₆₀ carboxylic acid and an amine selected from the group consisting of guanidine, aminoguanidine, urea, thiourea and salts thereof. The Examiner contends that the reaction product of guanidine and a carboxylic acid meets the instant claim limitations relating to a solid lubricant system. The Examiner affords no patentable weight to the phrases indicating use of the compositions, and asserts that because the disclosed composition is the same as that instantly claimed, that it may form a liquid phase upon application of pressure.

Balasubramaniam discloses a lubrication system for automotive and industrial gear operations. There is no disclosure or suggestion for using the composition in a sintered metal application. No one skilled in the art in sintered metal technology would look to Balasubramaniam for guidance in developing the presently claimed lubricant system.

Broadly, Balasubramaniam discloses the use of a lubricant composition comprising (A) a lubricating oil such as animal oils, vegetable oils, petroleum oils, mineral oils and coal/shale oils, (B) the reaction product of a C₅-C₆₀ carboxylic acid with an amine such as guanidine, and (C) a gear additive package, col. 2, lines 49-63; col. 3, lines 8-11. While Applicant makes no comment on the correctness of Examiner's statement that "[t]he claim language 'for use in the production of metal powder compacted parts' in claim 1 and 'for use as a die wall lubricant' in dependent claim 5 are statements of intended use which carry no weight in the claims," Applicant does note that such statements clearly indicate that the fields of endeavor of Balasubramaniam and the present invention are wholly unrelated. No one skilled in the art in making sintered metal parts would look to an automotive gear lubricant composition comprising a lubricating oil for guidance herein.

The Examiner has chosen to focus on one compositional component of Balasubramaniam (the reaction product of a C₅-C₆₀ carboxylic acid with an amine such as guanidine) while failing to note the other elements of both Balasubramaniam and the present invention, which clearly distinguish the latter from the former. Further, Applicant notes that the presently claimed invention is a solid lubricant system at ambient temperature, and it defeat the intended mode of operation for the lubrication formulation of Balasubramaniam if that composition were solid at ambient temperature. One skilled in the art of gear lubrication would expect such a lubrication system to be a liquid at and far below ambient temperature, else it would be useless.

Applicant further notes that the element of Balasubramaniam that the Examiner believes is in common with the presently claimed invention is the **reaction product** of an amine such as guanidine and a carboxylic acid. No current claim of the present invention recites a reaction product. Instant claim 1, as amended, recites a composition comprising a guanidine material and a carboxylic acid, not their reaction product.

Based on the foregoing, Applicant respectfully submits that claims 1, 3, 5, 8 and 10-15

are patentably distinct over Balasubramaniam.

New Claims

Applicant has added new claims 21 and 22 to round out claim coverage. Claim 21 recites a solid lubricant system for use in the production of metal powder compacted parts, said solid lubricant system consisting of: about 0.5 wt% to about 50 wt% of a guanidine material, about 5 wt% to about 35 wt% of a fatty acid, and about 30 wt% to about 65 wt% of an amide wax. Claim 22 imposes the limitations on the system of claim 21 that it is capable of forming a liquid phase upon application of pressure, and that it exhibits a viscosity of from about 1000 to about 6000 poise at a shear rate of 1000/second.

All limitations of claims 21 and 22 are found within the text of other, previously filed claims. No cited prior art reference discloses all of the limitations of claim 21 or 22. Applicant respectfully requests notification of the allowability of claims 21 and 22.

CONCLUSION

In light of the foregoing, it is respectfully submitted that the present application is in a condition for allowance and notice to that effect is hereby requested. If it is determined that the application is not in a condition for allowance, the Examiner is invited to initiate a telephone interview with the undersigned attorney to expedite prosecution of the present application.

If there are any additional fees resulting from this communication, please charge the same to our Deposit Account No. 18-0160, our Order No. APX-12571.DIV.

Respectfully submitted,

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